Claims

1. A sensor and print-head (2) assembly comprised in a housing (1) for a hand-held and hand-operated printing device controlled by a processor (4), comprising at least one sensor means (S0, S1), a print-head array (60), input means (6) on said housing (1) connected
5   to said processor (4) for input of assembly control commands, and means for keeping track of the assemblies and print-heads position on a print medium, **characterized** in that it comprises for a print out sweep with said array:

means for determining the x and y coordinates for at least one distal end (76, 78) of at least one row (70) of printing means in said print head array (60), and the angle of
10 rotation of said row (70) with reference to a base line, made up of coordinates for the long side of an image stored to be printed, whereby every dot of a part of an image to be printed having determinable corresponding x and y coordinates related to a determined position for said row (70);

means for determining an x and y coordinate for a first tangent (80, 82) of said
15 row (70) with the first part of said image to be printed, and at least one second tangent (84) for said image in relation to a mathematically defined configuration (72, 74) relating to the rotation angle of the row and said distal end (76, 78), said second tangent making up a boundary for when a print out of said part image should take place;

means for determining if said row (70) during movement is closing in to said
20 second tangent (84) from the clockwise or counter clockwise direction;

means for providing a print out decision for a subsequent part image to be printed through said print-head (60) in front of a print out, if the row (70) is closing in clockwise to the second tangent (84) when using the upper distal end (76) of the row (70) as reference for the second tangent (84), and the vice versa when using the lower distal end (78)
25 as reference for a sweep.

2. An assembly according to claim 1, wherein the print-head (60) is of the ink-jet type with spray nozzles (12) making up said row (70).

3. An assembly according to claim 2, wherein the first and last nozzle in said row are references for said distal ends.

30   4. An assembly according to claims 1-3, wherein said mathematical configuration has one origin on at least one of the distal ends of said row.

5. An assembly according to claims 1-4, wherein said configuration is used for clockwise rotation and/or counter clockwise rotational print out feeding through said row.

6. An assembly according to claims 1-5, wherein said mathematical configuration is a line suitable for forward feeding of said array.

7. An assembly according to claims 1-5, wherein said mathematical configuration is a curve suitable for rotation feeding of said array.

8. An assembly according to claims 1-7, wherein a frame is related to each part image to be printed, thus defining every part image through at most four tangent coordinates for a first and a second tangent.

9. An assembly according to claim 8, wherein coordinates for a frame are stored in a table sorted in accordance with corresponding part images to be printed.

10. An assembly according to claim 8 or 9, wherein said frame is longer then the actual part image to be printed, whereby a next image to be printed is pre checked according to its alignment for printing.

11. An assembly according to claims 1-9, wherein said array row is approximated with at least one half of a rectangle, thus facilitating the finding of a tangent for said row for a part image to be printed.

12. A method for a sensor and print-head (2) assembly comprised in a housing (1) for a handheld and hand operated printing device controlled by a processor (4), comprising at least one sensor means (S0, S1) for keeping track of the assemblies and print-heads position on a print medium and a print-head array (60) **characterized** in that it comprises, during a print out sweep with said array, the steps of:

- determining the position of the array at each moment;
- predicting the positions of the array for subsequent moments in order to
- determine whether a text block or an image is about to be printed during said subsequent moments and if so
- deciding whether the complete text block or image, or a predefined part of the text block or the image will be covered by said array during said print out sweep, based on said predictions, and if not,
- omitting a print out of said text block or image, or said part of the text block or image during said print out sweep, otherwise
- printing out said text block or image during said print out sweep.

13. A method for a sensor and print-head (2) assembly comprised in a housing (1) for a hand-held and hand-operated printing device controlled by a processor (4), comprising at least one sensor means (S0, S1), a print-head array (60), input means (6) on said housing (1) connected to said processor (4) for input of assembly control commands, and

5   means for keeping track of the assemblies and print-heads position on a print medium, **characterized** in that it comprises, during a print out sweep with said array, the steps of:

determining the x and y coordinates for at least one distal end (76, 78) of at least one row (70) of printing means in said print head array (60), and the angle of rotation of said row (70) with reference to a base line, made up of coordinates for the long side of an image

10   stored to be printed, whereby every dot of a part of an image to be printed having determinable corresponding x and y coordinates related to a determined position for said row (70);

determining an x and y coordinate for a first tangent (80, 82) of said row (70) with the first part of said image to be printed, and at least one second tangent (84) for said

15   image in relation to a mathematically defined configuration (72, 74) relating to the rotation angle of the row and said distal end (76, 78), said second tangent making up a boundary for when a print out of said part image should take place;

determining if said row (70) during movement is closing in to said second tangent (84) from the clockwise or counter clockwise direction; and

20   providing a print out decision for a subsequent part image to be printed through said print-head (60) in front of a print out, if the row (70) is closing in clockwise to the second tangent (84) when using the upper distal end (76) of the row (70) as reference for the second tangent (84), and the vice versa when using the lower distal end (78) as reference for a sweep.

14. A method according to claim 13, wherein the print-head is of the ink-jet type

25   with spray nozzles making up said row.

15. A method according to claim 14, wherein the first and last nozzle in said row are references for said distal ends.

16. A method according to claims 13-15, wherein said mathematical configuration has one origin on at least one of the distal ends of said row.

30   17. A method according to claims 13-16, wherein said configuration is used for clockwise rotation and/or counter clockwise rotational print out feeding through said row.

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18. A method according to claims 13-17, wherein said mathematical configuration is a line suitable for forward feeding with less rotation of said array.

19. A method according to claims 13-17, wherein said mathematical configuration is a curve suitable for rotation feeding of said array.

5   20. A method according to claims 13-19, wherein a frame is related to each part image to be printed, thus defining every part image through at most four tangent coordinates for a first and a second tangent.

21. A method according to claim 20, wherein coordinates for a frame are stored in a table sorted in accordance with corresponding part images to be printed.

10   22. A method according to claim 20 or 21, wherein said frame is longer then the actual part image to be printed, whereby a next image to be printed is pre checked according to its alignment for printing.

23. A method according to claims 13-22, wherein said array row is approximated with at least one half of a rectangle, thus facilitating the finding of a tangent for
15   said row for a part image to be printed.